

MEMORANDUM OF UNDERSTANDING

BETWEEN

U. S. GEOLOGICAL SURVEY
NATIONAL GEOSPATIAL PROGRAM OFFICE

AND

STATE OF NEBRASKA
GIS STEERING COMMITTEE

AND

NEBRASKA DEPARTMENT OF NATURAL RESOURCES

FOR THE

STEWARDSHIP OF THE NATIONAL HYDROGRAPHY DATASET
IN THE STATE OF NEBRASKA

I. PURPOSE

This Memorandum of Understanding (MOU), hereinafter referred to as the Agreement, is to identify the roles and responsibilities that the Nebraska GIS Steering Committee (NGISSC), the Nebraska Department of Natural Resources (NDNR), and the U.S. Geological Survey (USGS), referred to as partners, will undertake to maintain, update, and improve the National Hydrography Dataset (NHD) in a program of data stewardship. The partners to this Agreement represent Federal and State government with an interest in providing current, accurate, and consistent surface water geospatial data to meet the requirements of the National Spatial Data Infrastructure (NSDI) for hydrography.

II. BACKGROUND

The NHD is a comprehensive set of digital spatial data that contains information about surface water features such as lakes, ponds, streams, rivers, springs and wells. The NHD interconnects and uniquely identifies the stream segments or reaches that make up the Nation's surface water features, their attribution, their connectivity in a flow network, and an addressing system for linking additional related data known as events. Each reach in this framework is referenced by a permanent feature identifier known as a reach code. Each linear reach is also segmented into linear addresses measured along the reach. The USGS is the authority for reach codes and measures. Because the NHD provides a consistent framework for addressing and analysis, water-related information linked to reach addresses by one organization (national, state, local) can be shared with other organizations and easily integrated into many different types of applications to the benefit of all.

The USGS and Nebraska Department of Natural Resources have produced 1:24,000-scale NHD from the existing hydrographic data and one meter orthophotography produced cooperatively by NDNR and USGS. With the initial NHD collection completed, the next phase will be to maintain this data. The continued success of the NHD depends upon maintaining and improving upon this initial dataset through partnerships with those organizations using this data. The NHD data steward plays a key role in this activity.

The NHD is integrated with the USGS Geographic Names Information System (GNIS) to ensure that hydrographic feature names are properly represented, correct, and in accordance with U.S. Board on Geographic Names (BGN) standards.

III. SCOPE

The intent of this Agreement is to outline a partnership strategy and programmatic application for the long-term stewardship of high-resolution NHD encompassing the State of Nebraska. Development of data stewardship is a key component of the NSDI Partnership Agreement between the USGS and the NGISSC signed in November 2005.

All parties of this Agreement recognize that maintaining NHD consistency, currency, and accuracy will benefit all parties and all users of the NHD. The most direct benefit of shared maintenance is the ability to be informed about changes on the landscape and to

receive spatial data that faithfully represents those changes. Thus the best resources for information about changes are those closest to the change.

The NGISSC is recognized as the State's geospatial representative and authoritative source to implement and manage the stewardship program in Nebraska. The NDNR has a range of statutory authority and responsibilities in the area of Nebraska surface water management and has expertise in NHD development and maintenance gained through its workshare agreement with USGS to develop Nebraska's high-resolution NHD.

IV. AUTHORITIES

This Agreement is entered into under the NSDI Partnership Agreement between the USGS and the NGISSC signed in November 2005.

This Agreement is entered into by the USGS under Public Law 99-591 that bestows permanent authority to the USGS to "prosecute projects in cooperation with other agencies, Federal, State, and private" (43 U.S.C. 36c). This Agreement is entered into by the GIS Steering Committee under the Reissued Revised Statutes of Nebraska, 86-569 thru 573, which creates the NGISSC and gives it the responsibility for, "The promoting of the Geographic Information System development in the State of Nebraska and providing or coordinating additional support to address further Geographic Information System issues as such issues arise". This Agreement is entered into by the NDNR under the authority of the Reissued Revised Statutes of Nebraska, Section 2-1568, which gives the NDNR the duty to "maintain and administer a data bank in the field of soil and water resources in the State of Nebraska."

V. DEFINITIONS

For the purposes of this Agreement, 'stewardship' is defined as the overall programmatic coordination to maintain an up-to-date statewide NHD dataset while 'maintenance' is defined as the necessary revisions, corrections, updates, etc. to a particular sub-basin or set of sub-basins.

VI. RESPONSIBILITIES

The NGISSC and NDNR jointly agreed that NDNR shall be the designated data steward for the Nebraska NHD and as such NDNR shall:

- a. Act as the principal point of contact for the USGS on stewardship issues related to the high resolution NHD in Nebraska.
- b. Represent the interests of the user community concerned with hydrography in Nebraska by providing the USGS with the most widely accepted representation of the surface water in the NHD.
- c. Accept input from other agencies and organizations; consider any changes submitted and decide authoritatively if it will be accepted or not, and report the decision publicly.

- d. Be responsive to the input received by responding to proposed updates within an agreed-upon, reasonable time. Updates to the USGS shall be provided in a timely manner at intervals to be determined.
- e. Provide contact information for management and technical issues.
- f. Provide updates in the agreed upon-format (Appendix A).
- g. Provide metadata that clearly describes the sources used in the update and the process used to make the changes.
- h. Provide the USGS with updates that meet agreed-upon quality standards, maintaining quality assurance as follows;
- i. Strive to ensure that the data is error free so that it will work in (1) the transaction process, (2) input to the working NHD geodatabase, (3) routine validation checks, (4) distribution, and (5) normal applications. The partner shall perform a quality assurance check on the data before it is delivered to the USGS. The method used to perform this check will be at the discretion of the partner.
- j. Ensure that the core content (features, attributes and relationships identified in the NHD standards) is included (Appendix B).
- k. Rework updates returned for correction and resubmit to the USGS.
- l. Utilize nationally consistent reach codes.
- m. Provide the USGS with test transactions to demonstrate the ability to meet the standards.

The U.S. Geological Survey shall:

- a. Be responsive to the State by processing transactions to the point of distribution in a timely manner.
- b. Be responsive by providing the necessary information and assistance to allow Nebraska to create a stewardship program.
- c. Provide the tools, documentation, and training to edit and update the NHD (Appendix C).
- d. Work with the State to develop solutions to incorporate hydrographic data needed, but not normally included in the NHD framework.
- e. Provide notification, documentation, and assistance in response to submitted updates that do not meet the requirements established and agreed upon by the partners. Return updates that need to be reworked to meet requirements.
- f. Provide an Internet accessible reach code allocator and validate reach codes in update submissions.
- g. Notify the State of any changes to the NHD structure, format, or content that may affect the State.
- h. Provide clear guidance on expectations for acceptable updates.
- i. Provide documentation on validation criteria applied to updates.
- j. Provide documentation on formats for update transactions.
- k. Provide contact information for management and technical issues.

All three parties to this agreement (USGS, NGLISSC, and NDNR) shall work individually and cooperatively to:

- a. Maintain an awareness of the activities of other agencies and organizations involved in stewardship of Nebraska NHD information in order to include all applicable input for a given area.
- b. Provide publicly available information on the status of data stewardship activities.
- c. Pursue and secure the resources required to support on-going stewardship efforts

VII. IMPLEMENTATION

Upon approval of this Agreement, the USGS, the NGISSC, and NDNR will develop an Operating Plan (Statement of Work / Work plan) for this program. This Operating plan will describe how the program will be implemented and explain the programmatic and technical procedures.

VIII. STANDARDS AND TECHNICAL REFERENCES

See Appendix B for the current references to NHD standards, definitions, and QA/QC specifications and procedures. See Appendix A references the data delivery format and procedures for transactions. These appendices provide the current guidelines and standards at the time of this agreement but all parties acknowledge that these standards and guidelines will change and evolve over time.

IX. DATA OWNERSHIP AND RIGHTS

All data produced, updated and maintained in the NHD is public domain and available to any interested party.

X. FINANCIAL COMMITMENTS

This Agreement does not constitute a financial commitment on the part of the users or the State of Nebraska or USGS. The Agreement is designed to serve as a mechanism under which each will work cooperatively to exchange updates and continually make improvements to the NHD.

XI. PERIOD OF AGREEMENT

This Agreement shall take effect upon the date of the last signature and shall remain in effect for a period of 5 years. This Agreement may be reviewed annually or at the request of any of the three parties. This Agreement may be modified or amended at any time upon approval by all three parties. Any such amendment shall be in writing and shall be made an appendum to this agreement. This agreement may be terminated at any time by mutual written agreement of all three parties, or by any of the three parties upon 60 days written notice to the other parties.

XII. POINTS OF CONTACT

The USGS, the NGISSC, and NDNR designate the following persons as contacts for the resolution of administrative or technical related questions:

Administrative Contact


	USGS	Nebr. GIS Str. Cmte.	NDNR
NAME	Jim Langtry	Larry Zink	Josh Lear
TITLE	USGS NSDI Liaison	Coordinator Nebr. GIS Str. Cmte.	Natural Resources Planner / Coordinator NE Dept of Natural Resources
ADDRESS	5231 S. 19 th St. Lincoln, NE 68512	P.O. Box 95045 Lincoln, NE 68509	301 Centennial Mall South Lincoln, NE 68509-4676
TELEPHONE	402-328-4128	402-471-3206	402-471-3954
FAX	402-328-4101	402-471-4864	402-471-2900
E-MAIL	jlangtry@usgs.gov	Larry.Zink@nebraska.gov	jlear@dnr.ne.gov

Technical Contact

	USGS	NDNR
NAME	Paul Kimsey	Josh Lear
TITLE	Supervisory Cartographer USGS NGTOC	Natural Resources Planner / Coordinator NE Dept of Natural Resources
ADDRESS	Box 25046, Mail Stop 509 Denver, CO 80225	301 Centennial Mall South Lincoln, NE 68509-4676
TELEPHONE	303-202-4560	402-471-3954
FAX	303-202-4504	402-471-2900
E-MAIL	pjkimsey@usgs.gov	jlear@dnr.ne.gov

XIII. APPROVALS


U.S. Geological Survey


 2/8/08
Cheryl Morris Date
Geospatial Information Officer
Central Region
U.S. Geological Survey

Nebraska GIS Steering Committee

Steve Henderson Date
Chairman,
Nebraska GIS Steering Committee

Nebraska Department of Natural Resources

 2-29-08
Ann Bleed Date
Director
Nebraska Department of Natural Resources

APPROVED
AS TO FORM & CONTENT
BY NDNR LEGAL COUNSEL
 DATE 2/26/08

Appendix A

DATA DELIVERY FORMAT

All data transactions shall be in Extensible Language (XML) format, as defined in ISO Standard 15022. The XML file shall be accompanied by the NHDReachCrossReference Personal Geodatabase Table (.RCL). For more information on the XML standard, go to:

<http://www.iso15022.org/ISO15022XML/defaultXML.htm>

QUALITY ASSURANCE SPECIFICATIONS

For standards on data content, use:

Standards for National Hydrography Dataset - High Resolution

DRAFT

Defines features, feature attributes, attribute values, delineation, representation rules, and data extraction for the National Hydrography Dataset-High Resolution (NHD-HR) at scales larger than 1:100,000.

(145 p., 271KB, PDF)

<http://rmmcweb.cr.usgs.gov/public/nmpstds/nhdstds.html>

For reference documents on features, attributes and relationships in the NHD please go to:

<http://nhd.usgs.gov/techref.html>

Here you will find:

- **NHD QuickStart** [HTML 17k](#) | [PDF 145k](#)
The "NHDinARC QuickStart" is a condensed and highly informative reference document for the NHDinARC data model. The document defines important components of the data model, while addressing basic questions about the dataset.
- **Concepts and Contents** [HTML 597k](#) | [PDF 739k](#)
"Concepts and Contents" is the primary reference document for the National Hydrography Dataset. In this document, one will find information ranging from a high level overview of the NHD to detailed descriptions of the NHD data content. The "Concepts and Contents" document describes the elements of the dataset that make the NHD an effective resource to new users as well as those who have been using the USGS Digital Line Graph and the EPA Reach File. The main points of this document are summarized in the "NHDinARC QuickStart" document.
- **NHDinGEO Schema** - Diagram of the tables, the table items, the item definitions, and the relationships between the tables in the NHDinGEO data model.
 - [Hydrography](#) (66k)
 - [Metadata and Misc. Objects](#) (107k)
- **NHD Data Standards** - Defines valid feature types and their characteristics, the delineation or extent of a feature, how a feature is stored in the data, and detailed capture conditions for each of the feature types in the National Hydrography Dataset (NHD).
- **NHD Fact Sheet** - A brief summary of the history and characteristics of the NHD, with additional information concerning obtaining, and maintaining the NHD.
- **[Geographic Names Information System \(GNIS\)](#)** - Access GNIS to check, submit new, or make changes to names in GNIS.

Appendix C

EDIT TOOLS TO BE PROVIDED

A tool is necessary to specifically edit NHD data since the NHD structure is somewhat complex. This complexity is a part of the design that makes the NHD so suitable for a stewardship environment. Many components are tracked in tables that trace the legacy of the data. This tool, known as NHDGeo Edit, which operates on an ESRI Arc-GIS platform, was developed by the U.S.D.A. Forest Service and is now being maintained by the USGS, NGTOC, Denver and will be made available to the partner for use.

For software to support NHD maintenance go to:

http://webhosts.cr.usgs.gov/steward/scripts/st2_software.pl

For user-developed applications, go to:

<http://nhd.usgs.gov/applications.html>